



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/678,408

10/02/2003

Thomas J. Karol

101221-651

9995

27387 7590 03/06/2007  
NORRIS, MCLAUGHLIN & MARCUS, P.A.  
875 THIRD AVE  
18TH FLOOR  
NEW YORK, NY 10022

EXAMINER

MCAVOY, ELLEN M

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/678,408

Applicant(s)

KAROL ET AL.

Examiner

Ellen M. McAvoy

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,6-15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 10, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horodysky (4,389,322) or Horodysky et al (4,478,732) or Horodysky et al (4,594,171) or Doner et al (5,068,045) in combination with Karol (5,055,584) or Karol (4,761,482).

Applicants' arguments filed 15 December 2006 have been fully considered but they are not persuasive. As previously set forth, the Horodysky et al ["Horodysky"] references and the Doner et al ["Doner"] reference disclose borated derivatives of ethoxylated amides which are effective friction reducing additives in lubricating oil and grease compositions. Suitable lubricating oils include mineral and synthetic hydrocarbon oils of lubricating viscosity, and the amount of additive compound in the lubricant composition ranges from about 0.1% to about 10% by weight. The lubricant compositions may also include conventional lubricant additives such as ashless dispersants, detergents, anti-wear/extreme pressure agents, viscosity index improvers and the like, without effecting the performance of the borated ethoxylated amides. See column 5, line 64 to column 6, line 3, of Horodysky (4,478,732). The examiner maintains the position that component (1), an organo borate ester composition, is taught by the references outlined above. The antiwear composition of the claims additionally contains component (2), one or more

components selected from (i) a thiadiazole compound of formula (I); (ii) a bisdithiocarbamate compound of formula (II); (iii) dithiocarbamates of formula (III) or (IV); (iv) phosphorodithioates of formula (V); (v) phosphorodithioate esters of formula (VI); and (vi) a non-sulfur molybdenum additive. However, all of the component (2) additives are known in the lubricating oil art as set forth by applicants in the specification. Specifically, the 1,3,4-thiadiazole compounds, component 2(i), are taught by the Karol references. Karol '584 discloses reaction products of a maleic compound and 2,5-dimercapto-1,3,4-thiadiazole as antiwear agents and oxidation inhibitors in lubricating oil compositions. See column 1, line 52 to column 2, line 36. Karol '482 discloses reaction products of a terpene compound and 2,5-dimercapto-1,3,4-thiadiazole as antiwear agents and oxidation inhibitors in lubricating oil compositions. The compositions of either Karol reference may contain 0.01 to 10 percent of the thiadiazole additive and may also contain 0 to about 1.0 % by weight of zinc dihydrocarbyl-phosphorodithioate which meets the limitations of component 2(iv) of applicants' claims. The Karol references allow for the addition of conventional lubricant additives. Thus it would have been obvious to the skilled artisan at the time the invention was made to have combined the references and to have arrived at the claimed lubricant additive compositions. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the

motivation relied on by the examiner is the disclosure in Horodysky and Doner allowing for the addition of conventional lubricant additives to the compositions such as ashless dispersants, detergents, anti-wear/extreme pressure agents, viscosity index improvers and the like, without effecting the performance of the borated ethoxylated amides.

In the remarks filed 15 December 2006, applicants argued that the claims have been amended to include a ratio of component (1) to component (2) which maximizes the synergistic properties of the combination. The examiner is of the position that although a ratio of (1) organo borate ester, to the components of (2), of 1:3 to 15:1 is not specifically set forth in the prior art, the ratio is broad enough to include the various amounts of the additives taught as suitable in lubricating oil compositions. The test data set forth in the specification has been noted; however, the results presented are not commensurate in scope with the degree of protection sought by the claims.

Applicants submitted a Declaration under 37 CFR 1.132 by inventor Donnelly which contains additional examples to supplement the originally presented data in Tables 1-4 in the specification. The additional examples show more weight ratios of the same components already presented and do not add any additional components. The declaration has been carefully considered; however, the examiner is of the position that the data is still not commensurate in scope with the claimed invention which is what is needed to rebut the established *prima facie* case of obviousness. For example, in Table 1, Examples A and B are added with a weight ratio of 1.5/0.1 (Example A) and 0.1/1.5 (Example B) for components OCD-289 (borate ester component 1) and LZ 1395 (zinc dialkyldithiophosphate component 2(iv)). However,

component 1 of the claims is not limited to OCD-289, which is a 1% borate of a mixture of a C<sub>8</sub>-C<sub>18</sub> diethanolamide and a C<sub>8</sub> to C<sub>18</sub> monoglyceride, but broadly drawn to “an organo borate ester”. Similarly, component 2(iv) of the claims is not limited to LZ 1395, but broadly drawn to the phosphorodithioates of formula (V) wherein substituents X<sup>1</sup> and X<sup>2</sup> selected from O and S, substituents R<sup>14</sup> and R<sup>15</sup> selected from hydrogen and C<sub>1</sub>-C<sub>22</sub> alkyl groups, and M selected from 8 different groups of metals including zinc and an amine salt. Thus, the examiner maintains the position that the results do not rebut the *prima facie* case for the entire scope of the claims.

### ***Claim Rejections - 35 USC § 103***

Claims 1-3, 6-9, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horodysky (4,389,322) or Horodysky et al (4,478,732) or Horodysky et al (4,594,171) or Doner et al (5,068,045) in combination with Nakazato et al (5,629,272).

Applicant's arguments filed 15 December 2006 have been fully considered but they are not persuasive. As previously set forth, the Horodysky et al [“Horodysky”] references and the Doner et al [“Doner”] reference are relied on as outlined above. Component 2(ii), the bisdithiocarbamate, and component 2(iii), the dithiocarbamate, are well-known additives to lubricating oil compositions as evidenced by Nakazato et al [“Nakazato”] which discloses low-phosphorous lubricating oil compositions for internal combustion engines containing from 0.05 to 2 wt.% of an antiwear agent which is an aliphatic amide compound and either a dithiocarbamate compound or an ester derived from a fatty acid and boric acid. The

dithiocarbamate compounds are set forth in column 4, lines 28-50, and meet the limitations of components 2(ii) and 2(iii) of the claims. See also column 7, lines 1-38. Nakazato allows for the addition of conventional additives to the engine oil composition as set forth in column 8, lines 5-16. Thus it would have been obvious to the skilled artisan at the time the invention was made to have combined the references and to have arrived at the claimed lubricant additive compositions. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation relied on by the examiner is the disclosure in Horodysky and Doner allowing for the addition of conventional lubricant additives to the compositions such as ashless dispersants, detergents, anti-wear/extreme pressure agents, viscosity index improvers and the like, without effecting the performance of the borated ethoxylated amides.

In the remarks filed 15 December 2006, applicants argued that the claims have been amended to include a ratio of component (1) to component (2) which maximizes the synergistic properties of the combination. The examiner is of the position that although a ratio of (1) organo borate ester, to the components of (2), of 1:3 to 15:1 is not specifically set forth in the prior art, the ratio is broad enough to include the various amounts of the additives taught as suitable in lubricating oil compositions. The test data set forth in the specification has been noted;

however, the results presented are not commensurate in scope with the degree of protection sought by the claims.

Applicants submitted a Declaration under 37 CFR 1.132 by inventor Donnelly which contains additional examples to supplement the originally presented data in Tables 1-4 in the specification. The additional examples show more weight ratios of the same components already presented and do not add any additional components. The declaration has been carefully considered; however, the examiner is of the position that the data is still not commensurate in scope with the claimed invention which is what is needed to rebut the established *prima facie* case of obviousness. For example, in Table 4, Examples N, O, P are added with additional weight ratios for components OCD-289 (borate eater component 1) and Vanlube 7723 (a methylene bis(dibutyldithiocarbamate)). However, component 1 of the claims is not limited to OCD-289, which is a 1% borate of a mixture of a C<sub>8</sub>-C<sub>18</sub> diethanolamide and a C<sub>8</sub> to C<sub>18</sub> monoglyceride, but broadly drawn to "an organo borate ester". Similarly, component 2(ii) and component 2(iii) of the claims is not limited to Vanlube 7723 but broadly drawn to the bisdithiocarbamates of formula (II) and the dithiocarbamates of formula (III). Thus, the examiner maintains the position that the results do not rebut the *prima facie* case for the entire scope of the claims.

### ***Claim Rejections - 35 USC § 103***

Claims 1-3, 11, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horodysky (4,389,322) or Horodysky et al (4,478,732) or Horodysky et al (4,594,171) or



Art Unit: 1764

Doner et al (5,068,045) in combination with either Holt et al (6,187,723) or Atherton (5,925,600).

Applicants' arguments filed 15 December 2006 have been fully considered but they are not persuasive. As previously set forth, the Horodysky et al ["Horodysky"] references and the Doner et al ["Doner"] reference are relied on as outlined above. Holt et al ["Holt"] and Atherton are added to teach that component 2(v) of the claims, the phosphorodithioate esters of formula (VI), are well-known lubricating oil additives. See column 4, line 48 to column 5, line 8 of Holt, and column 3, lines 20-47 of Atherton. Thus it would have been obvious to the skilled artisan at the time the invention was made to have combined the references and to have arrived at the claimed lubricant additive compositions. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation relied on by the examiner is the disclosure in Horodysky and Doner allowing for the addition of conventional lubricant additives to the compositions such as ashless dispersants, detergents, anti-wear/extreme pressure agents, viscosity index improvers and the like, without effecting the performance of the borated ethoxylated amides.

In the remarks filed 15 December 2006, applicants argued that the claims have been amended to include a ratio of component (1) to component (2) which maximizes the synergistic

properties of the combination. The examiner is of the position that although a ratio of (1) organo borate ester, to the components of (2), of 1:3 to 15:1 is not specifically set forth in the prior art, the ratio is broad enough to include the various amounts of the additives taught as suitable in lubricating oil compositions. The test data set forth in the specification has been noted; however, the results presented are not commensurate in scope with the degree of protection sought by the claims.

Applicants submitted a Declaration under 37 CFR 1.132 by inventor Donnelly which contains additional examples to supplement the originally presented data in Tables 1-4 in the specification. The additional examples show more weight ratios of the same components already presented and do not add any additional components. The declaration has been carefully considered; however, the examiner is of the position that the data is still not commensurate in scope with the claimed invention which is what is needed to rebut the established *prima facie* case of obviousness. For example, in Table 4, Examples Q, R, S are added with additional weight ratios for components OCD-289 (borate ester component 1) and Vanlube 7611 M (a dialkyldithiophosphate succinate component (v)). However, component 1 of the claims is not limited to OCD-289, which is a 1% borate of a mixture of a C<sub>8</sub>-C<sub>18</sub> diethanolamide and a C<sub>8</sub> to C<sub>18</sub> monoglyceride, but broadly drawn to "an organo borate ester". Similarly, component (v) of the claims is not limited to VanLube 7611 M, but broadly to the phosphorodithioate esters of formula (VI). Thus, the examiner maintains the position that the results do not rebut the *prima facie* case for the entire scope of the claims.

***Claim Rejections - 35 USC § 103***

Claims 1-3, 12-13, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horodysky (4,389,322) or Horodysky et al (4,478,732) or Horodysky et al (4,594,171) or Doner et al (5,068,045) in combination with Rowan et al (4,889,647).

Applicants' arguments filed 15 December 2006 have been fully considered but they are not persuasive. As previously set forth, the Horodysky et al ["Horodysky"] references and the Doner et al ["Doner"] reference are relied on as outlined above. Rowan et al ["Rowan"] disclose molybdenum complexes prepared by reacting (a) a fatty oil, (b) diethanolamine and (c) a molybdenum source, which impart antifriction and antiwear properties to lubricating oil compositions. See column 1, line 54 to column 2, line 8. This meets the limitations of component 2(vi) of the claims, the non-sulfur molybdenum additive. Thus it would have been obvious to the skilled artisan at the time the invention was made to have combined the references and to have arrived at the claimed lubricant additive compositions. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation relied on by the examiner is the disclosure in Horodysky and Doner allowing for the addition of conventional lubricant additives to the compositions such as ashless dispersants, detergents, anti-

wear/extreme pressure agents, viscosity index improvers and the like, without effecting the performance of the borated ethoxylated amides.

In the remarks filed 15 December 2006, applicants argued that the claims have been amended to include a ratio of component (1) to component (2) which maximizes the synergistic properties of the combination. The examiner is of the position that although a ratio of (1) organo borate ester, to the components of (2), of 1:3 to 15:1 is not specifically set forth in the prior art, the ratio is broad enough to include the various amounts of the additives taught as suitable in lubricating oil compositions. The test data set forth in the specification has been noted; however, the results presented are not commensurate in scope with the degree of protection sought by the claims.

Applicants submitted a Declaration under 37 CFR 1.132 by inventor Donnelly which contains additional examples to supplement the originally presented data in Tables 1-4 in the specification. The additional examples show more weight ratios of the same components already presented and do not add any additional components. The declaration has been carefully considered; however, the examiner is of the position that the data is still not commensurate in scope with the claimed invention which is what is needed to rebut the established *prima facie* case of obviousness. For example, in Table 3, Examples H, I, K, L, M are added with additional weight ratios for components OCD-289 (borate ester component 1) and Molyvan 855 (a sulfur- and phosphorus-free organic amide complex prepared by sequentially reacting fatty oil, diethanolamine and a molybdenum source) which meets the limitations of component (vi). However, component 1 of the claims is not limited to OCD-289, which is a 1% borate of a

Art Unit: 1764

mixture of a C<sub>8</sub>-C<sub>18</sub> diethanolamide and a C<sub>8</sub> to C<sub>18</sub> monoglyceride, but broadly drawn to “an organo borate ester”. Similarly, component (vi) of the claims is not limited to Molyvan 855 but broadly to a non-sulfur molybdenum additive prepared by reacting (a) about 1.0 mole of fatty oil having 12 or more carbon atoms, (b) about 1.0 to 2.5 moles diethanolamine and (c) a molybdenum source. Thus, the examiner maintains the position that the results do not rebut the *prima facie* case for the entire scope of the claims.

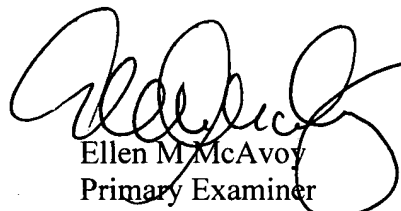
**THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ellen M. McAvoy  
Primary Examiner  
Art Unit 1764

EMcAvoy  
February 24, 2007